AF

TRANSMITTAL OF APPEAL BRIEF (Large Entity)

Docket No. V200-0035

In Re Application Of: **Thomas Paul Gielda**

Serial No.	Filing Date	Examiner	Group Art Unit
09/766,972	January 22, 2001	J. Morrow	3612

Invention: **THERMALLY ENERGY EFFICIENT VEHICLE**

TO THE COMMISSIONER FOR PATENTS:

Transmitted herewith in triplicate is the Appeal Brief in this application, with respect to the Notice of Appeal filed on

The fee for filing this Appeal Brief is: **$320.00**

☒ A check in the amount of the fee is enclosed.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☒ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment to Deposit Account No. **02-2712**

Daniel H. Bliss

Signature

Dated: August 25, 2003

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I certify that this document and fee is being deposited on August 25, 2003 with the U.S. Postal Service as first class mail under 37 C.F.R. 1.8 and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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#15

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Art Unit: 3612
Examiner: J. Morrow
Applicant(s): T. Gielda
Serial No.: 09/766,972
Filing Date: January 22, 2001
For: THERMALLY ENERGY EFFICIENT VEHICLE

APPEAL BRIEF

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

By Notice of Appeal filed June 25, 2003, Applicants have appealed the Final Rejection dated March 25, 2003 and submit this brief in support of that appeal.

REAL PARTY IN INTEREST

The real party in interest is the Assignee, Visteon Global Technologies, Inc.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences regarding the present application.

STATUS OF CLAIMS

Claim 1 has been rejected.

Claims 2 and 3 have been canceled.

CERTIFICATE OF MAILING: (37 C.F.R. 1.8) I hereby certify that this paper (along with any paper referred to as being attached or enclosed) is being deposited with the U.S. Postal Service with sufficient postage as First Class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450 on August 25, 2003, by Daniel H. Bliss.

Claims 4 through 11 have been rejected.

Claim 12 has been canceled.

Claims 13 through 20 have been rejected.

Claims 1, 4 through 11, and 13 through 20 are being appealed.

STATUS OF AMENDMENTS

An Amendment Under 37 C.F.R. 1.116 was filed on June 25, 2003 in response to the Final Office Action dated March 25, 2003. An Advisory Action dated July 17, 2003 indicated that the Amendment under 37 C.F.R. 1.116 had been considered, but would not place the application in a condition for allowance. The Advisory Action does not indicate that, upon the filing of an appeal, the Amendment under 37 C.F.R. 1.116 would be entered. A Notice of Appeal, along with the requisite fee, was filed on June 25, 2003. The Appeal Brief, along with the requisite fee, is submitted herewith.

SUMMARY OF THE INVENTION

The present invention is a thermally energy efficient vehicle 10 including a vehicle structure 12 that is the frame of the vehicle 10. The vehicle structure 12 also includes a vehicle body 14 which defines the shape of the vehicle 10 and includes structural members 16 typically associated with the vehicle body 14. The vehicle body 14 includes a plurality of generally planar interconnected body panels 28 secured thereto the frame that define an aesthetically pleasing shape of the thermally energy efficient vehicle 10. The vehicle structure 12 is divided into sections, such as a front storage compartment 30, an occupant compartment 32, and a rear storage compartment 34. The front storage compartment 30, referred to as an engine compartment,

houses the mechanisms for operating the vehicle 10, such as the powertrain. The occupant compartment 32 provides a shelter for a vehicle occupant, and includes seats, control mechanisms for operating the vehicle, and control mechanisms for maintaining the comfort of the occupant compartment. The vehicle structure 12 includes the use of a thermally efficient structural material 36 in a portion thereof.

The vehicle structure 12 also includes a window 40, such as a windshield 42, a side window 44 or a rear window 46. The thermally energy efficient vehicle 10 utilizes a low transmittance glass 48 for the window portions of the thermally energy efficient vehicle 10. Preferably, the low transmittance glass 48 is a dual pane glass consisting of two parallel sheets of glass 50 separated by an air gap 52. Preferably, the low transmittance glass 48 includes a solar reflective film 54 secured to a surface of the glass sheet 50. The film 54 reduces the load on a climate control system by reducing the solar radiation into the occupant compartment. The low transmittance glass 48 may also include a desiccant material 56 positioned in the air gap 52 between the glass sheets 50 to trap water vapor.

The thermally energy efficient vehicle 10 also includes an energy efficient insulator 58 to insulate the vehicle 10 from dynamic thermal energy transmission. Advantageously, the energy efficient insulator 58 is thermally efficient and also provides an acoustic barrier. Preferably, the energy efficient insulator 58 is a lightweight gas filled panel or bag. The energy efficient insulator 58 is attached to an inside portion of the vehicle structure 12, such as by an adhesive. Advantageously, the energy efficient insulator 58 improves the thermal resistance of the thermally energy efficient vehicle 10, resulting in higher outside surface temperatures.

The thermally energy efficient vehicle 10 includes a power train 70, such as a heat engine 72, operating on a hydrocarbon-based or fossil fuel, although other vehicle types are contemplated. The power from the engine 72 is used to operate the thermal energy management system. The engine 72 is also operatively connected to a transmission to transmit engine rotation and power to a drive wheel.

The thermally energy efficient vehicle 10 includes an energy efficient thermal management system 80. The thermal management system 80 generally provides both exterior thermal management and interior thermal management for the vehicle. Exterior thermal management provides powertrain cooling within the front storage compartment 30. Interior thermal management provides for heating, ventilation and air conditioning of an occupant compartment 32 portion of the thermally energy efficient vehicle 10, and is referred to as climate control.

The energy efficient thermal management system 80 includes a fan 82 positioned behind a front grill (not shown) portion of the thermally energy efficient vehicle 10. The fan draws air 84 from outside the vehicle 10 into the front storage compartment 30 to provide cooling of powertrain components, such as the engine 72. The thermal management system 80 further includes a radiator positioned behind the front grill. The radiator provides powertrain cooling by the rejection of waste heat from the engine 72 through a coolant fluid.

The thermal management system 80 also includes an airflow handling system, referred to in the art as a heating, ventilation and air conditioning (HVAC) air-handling assembly 98, for providing climate control within the occupant compartment 32. The HVAC air-handling assembly 98 conditions a flow of air by heating or cooling the airflow and distributing the flow of

conditioned air to the interior of the occupant compartment 32 of the thermally energy efficient vehicle 10.

ISSUE

The issues in this Appeal are statutorily formulated in 35 U.S.C. § 103. Specifically, one issue is whether the claimed invention of claims 1, 4, 5, and 10 are obvious and unpatentable under 35 U.S.C. § 103 over Cobes et al. (U.S. Patent No. 5,480,208) in view of Li (U.S. Patent No. 5,865,940) and Farmer et al. (U.S. Patent No. 4,973,511). Another issue is whether the claimed invention of claims 6 through 9, 11, and 13 through 20 are obvious and unpatentable under 35 U.S.C. § 103 over Cobes et al. (U.S. Patent No. 5,480,208) in view of Li (U.S. Patent No. 5,865,940) and Farmer et al. (U.S. Patent No. 4,973,511) and further in view Lisec (U.S. Patent No. 5,173,148).

GROUPINGS OF CLAIMS

Claims 1 and 4 through 10 stand or fall together in regard to the rejections under 35 U.S.C. § 103.

Claims 11 and 13 through 17 stand or fall together in regard to the rejection under 35 U.S.C. § 103.

Claims 18 through 20 stand or fall together in regard to the rejection under 35 U.S.C. § 103.

ARGUMENT

As to patentability, 35 U.S.C. § 103 provides that a patent may not be obtained:

> If the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Id.

The United States Supreme Court interpreted the standard for 35 U.S.C. § 103 in Graham v. John Deere, 383 U.S. 1, 148 U.S.P.Q. 459 (1966). In Graham, the Court stated that under 35 U.S.C. § 103:

> The scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background, the obviousness or non-obviousness of the subject matter is determined. 148 U.S.P.Q. at 467.

Using the standard set forth in Graham, the scope and content of the prior art relied upon by the Examiner will be determined.

As to the primary reference applied by the Examiner, U.S. Patent No. 5,480,208 to Cobes et al. discloses an S-portion for a frame-type vehicle body construction and an associated method. A vehicle in body white 10 for an automobile includes a driver side subassembly 12, an underbody subassembly 14, and a passenger side subassembly 16. The vehicle body construction may be made entirely of extruded aluminum components.

As to the secondary reference applied by the Examiner, U.S. Patent No. 5,865,940 to Li discloses a reversible attachment using dielectric heating. An automobile 2 has an instrument panel 6. The instrument panel 6 comprises a generally hollow housing 10 made of a rigid non-conductive material such as plastic. At least a portion of the housing 10 is covered by a padded face 8. Firewall 16 separates the interior cabin compartment from the engine compartment.

As to the tertiary reference applied by the Examiner, U.S. Patent No. 4,973,511 to Farmer et al. discloses a composite solar/safety film and laminated window assembly made therefrom. The laminate can be used in vehicle applications such as windshields or side and rear windows. The laminate includes a substrate layer 16 that serves as a carrier for solar coatings 18 and together the substrate 16 and solar coatings 18 comprise a solar control film 20.

As to the fourth reference applied by the Examiner, U.S. Patent No. 5,173,148 to Lisec discloses installation for the production of insulating glass. In FIG. 5, two glass panes 3 are pressed to form a single insulating glass pane.

In contradistinction, claim 1 claims the invention as a thermally energy efficient vehicle (10) including a vehicle structure (12). The vehicle structure (12) includes generally interconnected structural members (16) that form a frame for the vehicle (10) and generally planar interconnected panels (28) that define a shape of the vehicle (10). A thermally efficient structural material (36) is utilized for the structural members (16) to reduce a thermal mass of the structural members (16). The thermally energy efficient vehicle (10) also includes a low transmittance glass window (40) positioned within window portions of the vehicle structure (12). The low transmittance glass window (40) increases a thermal resistance of the vehicle (10). The thermally energy efficient vehicle (10) includes an energy efficient insulator (58) attached to an inside portion of the vehicle structure (12) to increase a thermal resistance of the vehicle (10). The thermally efficient energy vehicle (10) further includes an energy efficient thermal management system (80) providing exterior thermal management for powertrain cooling within an engine compartment (30) and interior thermal management for climate control within an occupant compartment (32) for the vehicle (10). The energy efficient thermal management

system (80) consumes less thermal energy as a result of the increased thermal resistance of the vehicle (10).

The United States Court of Appeals for the Federal Circuit (CAFC) has stated in determining the propriety of a rejection under 35 U.S.C. § 103(a), it is well settled that the obviousness of an invention cannot be established by combining the teachings of the prior art absent some teaching, suggestion or incentive supporting the combination. See In re Fine, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 227 U.S.P.Q. 657 (Fed. Cir. 1985); ACS Hospital Systems, Inc. v. Montefiore Hospital, 732 F.2d 1572, 221 U.S.P.Q. 929 (Fed. Cir. 1984). The law followed by our court of review and the Board of Patent Appeals and Interferences is that " [a] prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re Rinehart, 531 F.2d 1048, 1051, 189 U.S.P.Q. 143, 147 (C.C.P.A. 1976). See also In re Lalu, 747 F.2d 703, 705, 223 U.S.P.Q. 1257, 1258 (Fed. Cir. 1984) ("In determining whether a case of prima facie obviousness exists, it is necessary to ascertain whether the prior art teachings would appear to be sufficient to one of ordinary skill in the art to suggest making the claimed substitution or other modification.")

As to the differences between the prior art and the claims at issue, the primary reference to Cobes et al. '208 merely discloses an S-portion for a frame-type vehicle body construction and an associated method having a vehicle body construction that may be made entirely of extruded aluminum components. Cobes et al. '208 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant

compartment for the vehicle. Cobes et al. '208 also lacks a low transmittance glass window positioned within window portions of the vehicle structure. Cobes et al. '208 further lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Contrary to the Examiner's opinion, because Cobes et al. '208 is silent on components used to finish the frame, it is not inherent to provide exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle.

The secondary reference to Li '940 merely discloses a reversible attachment using dielectric heating in which an instrument panel comprises a generally hollow housing made of a rigid non-conductive material such as plastic and at least a portion of the housing is covered by a padded face. Li '940 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Li '940 also lacks a low transmittance glass window positioned within window portions of the vehicle structure. Li '940 further lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Contrary to the Examiner's opinion, the instrument panel 6 of Li '940 is not an energy efficient insulator and there is no energy efficient insulator between either the floor or dash panel and the occupant compartment as described on page 14 of the present application. Further, the instrument panel 6 of Li '940 is not a lightweight gas filled panel or bag.

The tertiary reference to Farmer et al. '511 merely discloses a composite solar/safety film and laminated window assembly made therefrom that can be used in vehicle applications such as windshields or side and rear windows and includes a substrate layer serving

as a carrier for solar coatings. Farmer et al. '511 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Farmer et al. '511 also lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle.

As to the level of ordinary skill in the pertinent art, Cobes et al. '208 merely discloses an S-portion for a frame-type vehicle body construction and an associated method having a vehicle body construction that may be made entirely of extruded aluminum components. Li '940 merely discloses a reversible attachment using dielectric heating in which an instrument panel comprises a generally hollow housing made of a rigid non-conductive material such as plastic and at least a portion of the housing is covered by a padded face. Farmer et al. '511 merely discloses a composite solar/safety film and laminated window assembly made therefrom that can be used in vehicle applications such as windshields or side and rear windows and includes a substrate layer serving as a carrier for solar coatings. However, there is absolutely no teaching of a level of skill in the vehicle art to include a thermally efficient structural material for structural members of a vehicle structure, a low transmittance glass window positioned within window portions of the vehicle structure, an energy efficient insulator attached to an inside portion of the vehicle structure, and an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Further, there is no motivation in the art to include the instrument panel of Li '940 or laminated window assembly of Farmer et al. '511 in the aluminum vehicle body construction of Cobes et al.

'208 because Cobes et al. '208, Farmer et al. '511, and Li '940 operate in an entirely different manner.

The present invention sets forth a unique and non-obvious combination of a thermally energy efficient vehicle that demonstrates reduced thermal energy transmission into or out of the vehicle. The references, if combinable, fail to teach or suggest the combination of a thermally efficient energy vehicle including a thermally efficient structural material for structural members of a vehicle structure, a low transmittance glass window positioned within window portions of the vehicle structure, an energy efficient insulator attached to an inside portion of the vehicle structure, and an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle as claimed by Applicants. The Examiner has failed to establish a case of prima facie obviousness.

Obviousness under § 103(a) is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988)), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. The Examiner may not, because he/she doubts that the invention is patentable, resort to speculation, unfounded assumptions or hindsight reconstruction to supply deficiencies in the factual basis. See In re Warner, 379 F. 2d 1011, 154 U.S.P.Q. 173 (C.C.P.A. 1967). Because the Examiner has not provided a sufficient factual basis that is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejection of claim 1 is improper.

Against this background, it is submitted that the present invention of claim 1 is not obvious in view of Cobes et al. '208, Farmer et al. '511, and Li '940. The references fail to teach

or suggest the combination of a thermally energy efficient vehicle of claim 1. Therefore, it is respectfully submitted that claim 1 is not obvious and is allowable over the rejection under 35 U.S.C. § 103.

The law is clear that a claim in dependent form shall be construed to incorporate by reference all of the limitations of the claim to which it refers. 35 U.S.C. § 112, ¶ 4. Dependent claims 4 through 10 perfect and further limit independent claim 1. Claim 4 defines that the energy efficient insulator provides a thermal barrier and an acoustic barrier. Claim 5 defines that the energy efficient insulator is a gas-filled panel. Claim 6 defines that the low transmittance glass window includes two parallel sheets of glass separated by an air gap, to improve a thermal resistance of the low transmittance glass. Claim 7 defines that the low transmittance glass includes a solar reflective film attached to an outside surface of one of the two parallel sheets of glass. Claim 8 defines that the low transmittance glass includes a desiccant material disposed within the air gap between the two parallel sheets of glass. Claim 9 defines that the low transmittance glass window is made from a glass/polycarbonate composite material. Claim 10 defines that a thermal energy consumption capacity of the energy efficient thermal management system is reduced by increasing the thermal resistance of the vehicle. Based on the above, it is respectfully submitted that claims 4 through 10 are not obvious and are allowable over the rejection under 35 U.S.C. § 103.

As to independent claim 11, claim 11 claims the invention as a thermally energy efficient vehicle (10) including a vehicle structure (12). The vehicle structure (12) includes generally interconnected structural members (16) that form a frame for the vehicle (10) and generally planar interconnected panels (28) that define a shape of the vehicle (10), wherein a thermally efficient structural material (36) is utilized for the structural members (16) to reduce a

thermal mass of the vehicle (10). The thermally energy efficient vehicle (10) also includes a low transmittance glass window (40) positioned within window portions of the vehicle structure (12), wherein the low transmittance glass window (40) includes two parallel sheets of glass (50) separated by an air gap (52) to increase a thermal resistance of the vehicle (10). The thermally energy efficient vehicle (10) includes an energy efficient insulator (58) attached to an inside portion of the vehicle structure (12) to increase a thermal resistance of the vehicle (10). The thermally energy efficient vehicle (10) further includes an energy efficient thermal management system (80) providing exterior thermal management for powertrain cooling within an engine compartment (30) and interior thermal management for climate control within an occupant compartment (32) for the vehicle (10). The thermal energy consumption capacity of the energy efficient thermal management system (80) is decreased since the energy efficient thermal management system (80) consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle (10).

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 11. Specifically, Cobes et al. '208 merely discloses an S-portion for a frame-type vehicle body construction and an associated method having a vehicle body construction that may be made entirely of extruded aluminum components. Cobes et al. '208 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Cobes et al. '208 also lacks a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle. Contrary to the Examiner's opinion, because Cobes et al. '208

is silent on components used to finish the frame, it is not inherent to provide an exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle.

Li '940 merely discloses a reversible attachment using dielectric heating in which an instrument panel comprises a generally hollow housing made of a rigid non-conductive material such as plastic and at least a portion of the housing is covered by a padded face. Li '940 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Li '940 also lacks a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle. Li '940 further lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Contrary to the Examiner's opinion, the instrument panel 6 of Li '940 is not an energy efficient insulator and there is no energy efficient insulator between either the floor or dash panel and the occupant compartment as described on page 14 of the present application. Further, the instrument panel 6 of Li '940 is not a lightweight gas filled panel or bag.

Farmer et al. '511 merely discloses a composite solar/safety film and laminated window assembly made therefrom that can be used in vehicle applications such as windshields or side and rear windows and includes a substrate layer serving as a carrier for solar coatings. Farmer et al. '511 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Farmer et al.

'511 also lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle.

Lisec '148 merely discloses an installation for the production of insulating glass having two glass panes pressed to form a single insulating glass pane. Lisec '148 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Lisec '148 also lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. There is no motivation in the art to combine Cobes et al. '208, Li '940, Farmer et al. '511, and Lisec '148 together to obtain the claimed invention and such a combination is still deficient in achieving Applicant's claimed invention.

The present invention sets forth a unique and non-obvious combination of a thermally energy efficient vehicle that demonstrates reduced thermal energy transmission into or out of the vehicle. The references, if combinable, fail to teach or suggest the combination of a thermally efficient energy vehicle including a thermally efficient structural material for structural members of a vehicle structure, a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle, an energy efficient insulator attached to an inside portion of the vehicle structure, and an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle as claimed by Applicant.

The CAFC has held that "[t]he mere fact that prior art could be so modified would not have made the modification obvious unless the prior art suggested the desirability of the modification". In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). The Examiner has failed to show how the prior art suggested the desirability of modification to achieve Applicant's invention. As a result, the Examiner has failed to establish a case of prima facie obviousness.

Against this background, it is submitted that the present invention of claim 11 is not obvious in view of Cobes et al. '208, Li '940, Farmer et al. '511, and Lisec '148. The references fail to teach or suggest the combination of a thermally energy efficient vehicle of claim 11. Therefore, it is respectfully submitted that claim 11 is not obvious and is allowable over the rejection under 35 U.S.C. § 103.

Dependent claims 13 through 17 perfect and further limit independent claim 11. Claim 13 defines that the energy efficient insulator provides a thermal barrier and an acoustic barrier. Claim 14 defines that the energy efficient insulator is a gas-filled panel. Claim 15 defines that the low transmittance glass includes a solar reflective film attached to an outside surface of one of the two parallel sheets of glass. Claim 16 defines that the low transmittance glass includes a desiccant material disposed within the air gap between the two parallel sheets of glass. Claim 17 defines that the low transmittance glass window is made from a glass/polycarbonate composite material. Based on this, it is respectfully submitted that claims 13 through 17 are not obvious and are allowable over the rejection under 35 U.S.C. § 103.

As to claim 18, claim 18 claims the invention as a thermally energy efficient vehicle (10) including a vehicle structure (12). The vehicle structure (12) includes generally interconnected structural members (16) that form a frame for the vehicle (10) and generally

planar interconnected panels (28) that define a shape of the vehicle (10), wherein a thermally efficient structural material (36) is utilized for the structural members (16) to reduce a thermal mass of the vehicle (10). The thermally energy efficient vehicle (10) also includes an energy efficient insulator (58) attached to an inside portion of the vehicle structure (12) to increase a thermal resistance of the vehicle (10). The thermally energy efficient vehicle (10) includes a low transmittance glass window (40) positioned within window portions of the vehicle structure (12). The low transmittance glass window (40) includes two parallel sheets of glass (50) separated by an air gap (52) to increase the thermal resistance of the vehicle (10). The thermally energy efficient vehicle (10) further includes an energy efficient thermal management system (80) providing exterior thermal management for powertrain cooling within an engine compartment (30) and interior thermal management for climate control within an occupant compartment (32) for the vehicle (10). A thermal energy consumption capacity of the energy efficient thermal management system (80) is decreased since the energy efficient thermal management system (80) consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle (10).

None of the references cited, either alone or in combination with each other, teach or suggest the claimed invention of claim 18. Specifically, Cobes et al. '208 merely discloses an S-portion for a frame-type vehicle body construction and an associated method having a vehicle body construction that may be made entirely of extruded aluminum components. Cobes et al. '208 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Cobes et al. '208 also lacks a low transmittance glass window positioned within window portions of the

vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle. Cobes et al. '208 further lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Contrary to the Examiner's opinion, because Cobes et al. '208 is silent on components used to finish the frame, it is not inherent to provide an exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle.

Li '940 merely discloses a reversible attachment using dielectric heating in which an instrument panel comprises a generally hollow housing made of a rigid non-conductive material such as plastic and at least a portion of the housing is covered by a padded face. Li '940 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Li '940 also lacks a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle. Li '940 further lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. Contrary to the Examiner's opinion, the instrument panel 6 of Li '940 is not an energy efficient insulator and there is no energy efficient insulator between either the floor or dash panel and the occupant compartment as described on page 14 of the present application. Further, the instrument panel 6 of Li '940 is not a lightweight gas filled panel or bag.

Farmer et al. '511 merely discloses a composite solar/safety film and laminated window assembly made therefrom that can be used in vehicle applications such as windshields or

side and rear windows and includes a substrate layer serving as a carrier for solar coatings. Farmer et al. '511 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Farmer et al. '511 also lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle.

Lisec '148 merely discloses an installation for the production of insulating glass having two glass panes pressed to form a single insulating glass pane. Lisec '148 lacks an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle. Lisec '148 also lacks an energy efficient insulator attached to an inside portion of the vehicle structure to increase a thermal resistance of the vehicle. There is no motivation in the art to combine Cobes et al. '208, Li '940, Farmer et al. '511, and Lisec '148 together to obtain the claimed invention and such a combination is still deficient in achieving Applicant's claimed invention.

There is absolutely no teaching of a level of skill in the vehicle art that a thermally energy efficient vehicle can be constructed with a thermally efficient structural material for structural members, a low transmittance glass window positioned within window portions including two parallel sheets of glass separated by an air gap, an energy efficient insulator attached to an inside portion, and an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment. The Cobes et al. '208, Li '940, Farmer et al. '511, and Lisec '148 references skirt around, but do not suggest the claimed

invention as a whole. See Hybritech Inc. v. Monoclonal Antibodies, Inc., 802 F.2d 1367, 1383 (Fed. Cir. 1986).

The present invention sets forth a unique and non-obvious combination of a thermally energy efficient vehicle that demonstrates reduced thermal energy transmission into or out of the vehicle. The references, if combinable, fail to teach or suggest the combination of a thermally efficient energy vehicle including a thermally efficient structural material for structural members, a low transmittance glass window positioned within window portions of the vehicle structure including two parallel sheets of glass separated by an air gap to increase a thermal resistance of the vehicle, an energy efficient insulator attached to an inside portion of the vehicle structure, and an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle as claimed by Applicant. As a result, the Examiner has failed to establish a case of prima facie obviousness.

Against this background, it is submitted that the present invention of claim 18 is not obvious in view of Cobes et al. '208, Li '940, Farmer et al. '511, and Lisec '148. The references fail to teach or suggest the combination of a thermally efficient energy vehicle of claim 18. Therefore, it is respectfully submitted that claim 18 is not obvious and is allowable over the rejection under 35 U.S.C. § 103.

Dependent claims 19 and 20 perfect and further limit independent claim 18. Claim 19 defines that the energy efficient insulator provides a thermal barrier and an acoustic barrier. Claim 20 defines that the energy efficient insulator is a gas-filled panel. Based on this, it is respectfully submitted that claims 19 and 20 are not obvious and are allowable over the rejection under 35 U.S.C. § 103.

Obviousness under § 103 is a legal conclusion based on factual evidence (In re Fine, 837 F.2d 1071, 1073, 5 U.S.P.Q.2d 1596, 1598 (Fed. Cir. 1988), and the subjective opinion of the Examiner as to what is or is not obvious, without evidence in support thereof, does not suffice. Since the Examiner has not provided a sufficient factual basis, which is supportive of his/her position (see In re Warner, 379 F.2d 1011, 1017, 154 U.S.P.Q. 173, 178 (C.C.P.A. 1967), cert. denied, 389 U.S. 1057 (1968)), the rejections of claims 1, 4 through 11, and 13 through 20 are improper.

In conclusion, it is respectfully submitted that the rejections of claims 1 through 4, 6 through 9, and 11 through 20 are improper and should be reversed.

Respectfully submitted,

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APPENDIX

The claims on appeal are as follows:

1. A thermally energy efficient vehicle comprising:

a vehicle structure, wherein said vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for said structural members to reduce a thermal mass of said structural members;

a low transmittance glass window positioned within window portions of said vehicle structure, wherein said low transmittance glass window increases a thermal resistance of the vehicle;

an energy efficient insulator attached to an inside portion of said vehicle structure to increase a thermal resistance of the vehicle; and

an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle, wherein said energy efficient thermal management system consumes less thermal energy as a result of the increased thermal resistance of the vehicle.

4. A thermally energy efficient vehicle as set forth in claim 1 wherein said energy efficient insulator provides a thermal barrier and an acoustic barrier.

5. A thermally energy efficient vehicle as set forth in claim 1 wherein said energy efficient insulator is a gas-filled panel.

6. A thermally energy efficient vehicle as set forth in claim 1 wherein said low transmittance glass window includes two parallel sheets of glass separated by an air gap, to improve a thermal resistance of the low transmittance glass.

7. A thermally energy efficient vehicle as set forth in claim 6 wherein said low transmittance glass includes a solar reflective film attached to an outside surface of one of the two parallel sheets of glass.

8. A thermally energy efficient vehicle as set forth in claim 6 wherein said low transmittance glass includes a desiccant material disposed within the air gap between the two parallel sheets of glass.

9. A thermally energy efficient vehicle as set forth in claim 1 wherein said low transmittance glass window is made from a glass/polycarbonate composite material.

10. A thermally energy efficient vehicle as set forth in claim 1 wherein a thermal energy consumption capacity of the energy efficient thermal management system is reduced by increasing the thermal resistance of the vehicle.

11. A thermally energy efficient vehicle comprising:

a vehicle structure, wherein said vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for said structural members to reduce a thermal mass of the vehicle;

a low transmittance glass window positioned within window portions of said vehicle structure, wherein said low transmittance glass window includes two parallel sheets of glass separated by an air gap, to increase a thermal resistance of the vehicle;

an energy efficient insulator attached to an inside portion of said vehicle structure to increase a thermal resistance of the vehicle; and

an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal management for climate control within an occupant compartment for the vehicle, wherein a thermal energy consumption capacity of said energy efficient thermal management system is decreased since said energy efficient thermal management system consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle.

13. A thermally energy efficient vehicle as set forth in claim 11 wherein said energy efficient insulator provides a thermal barrier and an acoustic barrier.

14. A thermally energy efficient vehicle as set forth in claim 13 wherein said energy efficient insulator is a gas-filled panel.

15. A thermally energy efficient vehicle as set forth in claim 11 wherein said low transmittance glass includes a solar reflective film attached to an outside surface of one of the two parallel sheets of glass.

16. A thermally energy efficient vehicle as set forth in claim 11 wherein said low transmittance glass includes a desiccant material disposed within the air gap between the two parallel sheets of glass.

17. A thermally energy efficient vehicle as set forth in claim 11 wherein said low transmittance glass window is made from a glass/polycarbonate composite material.

18. A thermally energy efficient vehicle comprising:

a vehicle structure, wherein said vehicle structure includes generally interconnected structural members that form a frame for the vehicle and generally planar interconnected panels that define a shape of the vehicle, wherein a thermally efficient structural material is utilized for said structural members to reduce a thermal mass of the vehicle;

an energy efficient insulator attached to an inside portion of said vehicle structure to increase a thermal resistance of the vehicle;

a low transmittance glass window positioned within window portions of said vehicle structure, wherein said low transmittance glass window includes two parallel sheets of glass separated by an air gap, to increase the thermal resistance of the vehicle; and

an energy efficient thermal management system providing exterior thermal management for powertrain cooling within an engine compartment and interior thermal

management for climate control within an occupant compartment for the vehicle, wherein a thermal energy consumption capacity of said energy efficient thermal management system is decreased since said energy efficient thermal management system consumes less thermal energy resulting from the increased thermal resistance and reduced thermal mass of the vehicle.

19. A thermally energy efficient vehicle as set forth in claim 18 wherein said energy efficient insulator provides a thermal barrier and an acoustic barrier.

20. A thermally energy efficient vehicle as set forth in claim 18 wherein said energy efficient insulator is a gas-filled panel.